

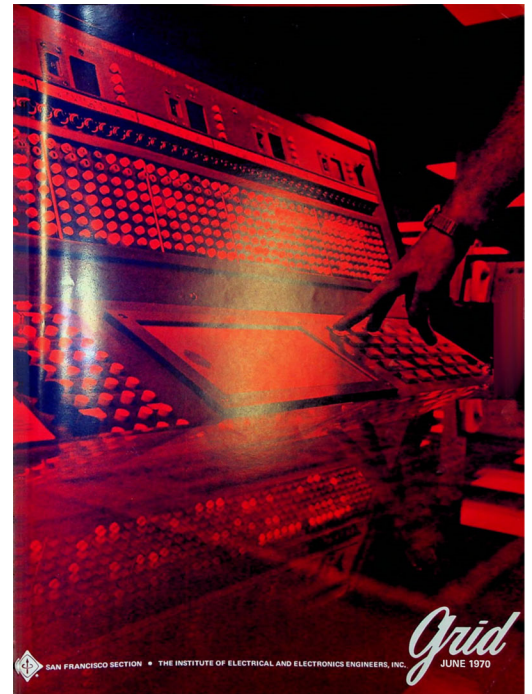
EDITOR'S PROFILE of this issue

from a historical perspective ...

with Paul Wesling, SF Bay Area Council GRID editor (2004-2014)

June, 1970:

Cover: The theme of the International Communications Conference (ICC) is "Communications in the Development of Nations". This photo depicts the human touch. More on pages 12-13.



Archive of available SF Bay Area GRID Magazines is at this location:

https://ethw.org/IEEE_San_Francisco_Bay_Area_Council_History

At time of scanning, the bound volumes are held by Paul Wesling.

April, 2025

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Grid
JUNE 1970



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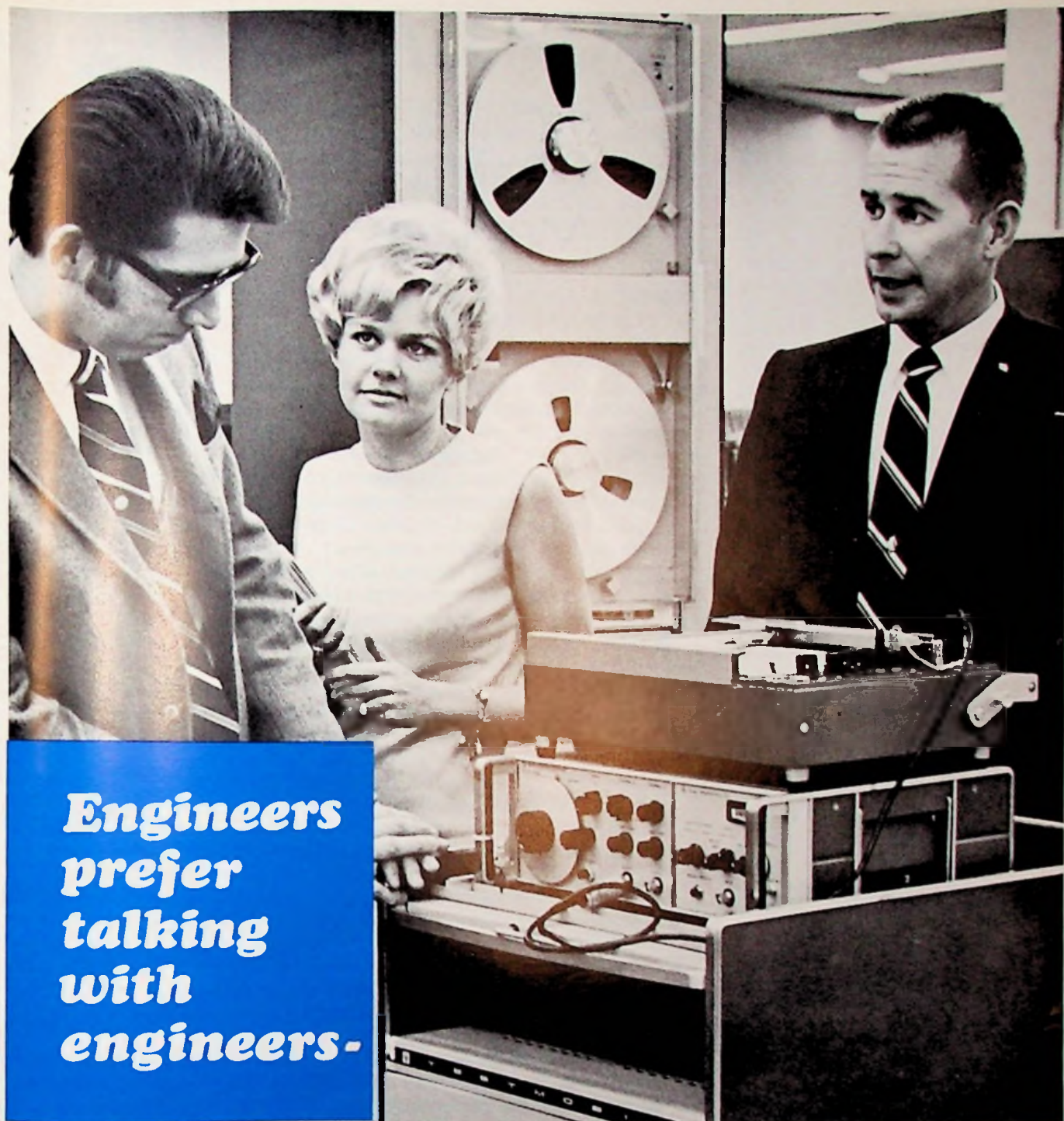
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ON THE COVER

Excessive noise — lack of privacy — careless use and pollution of public space — communications problems of people separated by different background and needs: these modern problems were all there in the past. They have, of course, become considerably more aggravated in step with the remarkable technological progress that has been made. The question of the day is: how can *human* development be accelerated to catch up and keep pace with the technological?

ICC 70 in San Francisco hopes to take a few small steps forward toward in answer to this question. Its theme "Communications in the Development of Nations" is reflected in several sessions. Also, a special panel session — "Communications for the Communities of Man" — on Tuesday, June 9, will explore the engineer's obligations to the human environment in which he performs. The cover picture depicts the human touch necessary to the technology of communications.

Gerd Wallenstein
International Participation Chairman
ICC 70

Photo courtesy of WEMA

Grid

volume 16
number 10

JUNE 1970

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THE Chairman's Message

John B. Damonte



June marks the end of the section year in San Francisco—where did the time go? The year has been a busy one, filled with interesting meetings and a few notable achievements. Our Annual Meeting honored 11 of our Section members recently elected to the Grade of Fellow, Charles H. Coleman, recipient of the Vladimir K. Zworykin Award and Martin W. McLaren, recipient of the Region 6 Community Service Award. It is a pleasure to recognize the achievements of these fine engineers.

Our 3 Subsections and 24 Group Chapters held 158 meetings covering the entire spectrum of electrical engineering interest. The section owes a debt of gratitude to all of the chairmen who labored so diligently to produce the finest technical meeting programs that I have seen in years.

In keeping with our desire to promote closer contact between the 9 Student Branches and the Section, the Executive Committee held two informal meetings with the Student Branch Officers and Counselors to discuss the various aspects of "engineering in the 70s." These meetings have been instructive for both sides and we hope that they will continue as a meaningful dialogue between the Campus and the Profession.

Although we remain the largest Section in the world, our membership has dropped from 7938 a year ago to 7644 as of 1 April 1970. This includes 201 Fellows, 1097 Senior Members, 5038 Members, 437 Associates and 871 Student Members. Much of the decline in membership is attributable to the recession our industry has seen on the Peninsula and we pray that it will be only a temporary misfortune.

From a financial point of view, the year has exceeded our fondest expectations. We budgeted for a break-even operation and we now estimate a surplus of approximately \$7000. Credit for this achievement belongs to our hard-working Treasurer, Bud Eldon, and our office manager, Jean Helmke, to Don Larson who made WESCON an extra special success and to the EXCOM members who showed admirable restraint in controlling the expenditure of your funds.

The Grid continues to be our main channel of communication between the Section and the membership. The quality of the magazine continues to improve under the ever-watchful eye of the Editorial Review Board. The magazine is recognized by Headquarters as one of the finest in the USA. Most of the credit for the artistic layout, quality production and timely delivery of the Grid belongs to our dedicated Editor, Ernesto Montaño. It is Ernesto who doctors and worries the magazine from conception to birth each month. To make the Grid of even greater value to you we need newsworthy items of local interest from the Subsections, the Group Chapters and the Student Branches. Each of these groups should appoint a Publicity Chairman, whose assignment is to provide monthly inputs to Grid.

On the whole, I believe the year was a successful one. I am grateful for the cooperation, advice and assistance given me by my corps of officers: Don Pederson, Larry Fitzsimmons and Bud Eldon and by the Directors and the members of the Executive Committee. I compliment the officers of the Subsections, Group Chapters and Student Branches for their excellent programs. And finally, I thank YOU — the members of the Section — for participating and giving all this activity some meaning!

John B. Damonte, Chairman
IEEE San Francisco Section

MEETING CALENDAR

**ELECTRON
DEVICES**
JUNE 25

Story on
page 5

BEAM LEAD INTEGRATED CIRCUITS. Martin T. Lepseiter, Director Semiconductor Device Laboratory, Bell Telephone Labs., Allentown, N.J.

JUNE 25, Thursday, 8:00 PM, Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto.
Cocktails: 6:00 PM; dinner: 7:00 PM. Reservations: Section office, 327-6622, by June 24th.

RELIABILITY
JUNE 11

Story on
page 4

**SEMICONDUCTOR DEVICE METALLIZATIONS:
SOME FACTORS AFFECTING RELIABILITY.** Dr. Eugene Meieran, Research & Development, Fairchild Semiconductor, Mt. View.

JUNE 11, Thursday, 8:00 PM, Stanford Physics Bldg., Room 101, Stanford University. Dinner: 6:30 PM, Stanford View Restaurant, 1921 El Camino Real, Palo Alto. Reservations: Gil Bowers, 962-4111 by June 10th.

**VEHICULAR
TECHNOLOGY**
JUNE 15

**FIELD TRIP: 1½-HOUR CONDUCTED TOUR OF
STANFORD LINEAR ACCELERATOR CENTER.**

JUNE 15, Monday, 8:30 PM. Meet at Auditorium, SLAC, 2575 Sand Hill Road, Menlo Park. Near Hiway 280 turnoff. Dinner: 8:30 PM, after the tour. Location of dinner will be announced at SLAC. Reservations: W. J. Nye, 328-1200 by Friday, June 12th, or Al Isberg, 433-3800.

**SAN FRANCISCO
SECTION**
JUNE 5

ANNUAL MEETING. Honoring the Section's 1970 Fellows and introducing the officers for 1970-71.

JUNE 5, Friday, Cocktails: 6:30 PM; dinner 8:00 PM and dancing from 9:00 PM to 1:00 AM. \$7.50 per person including tax & tip. Tickets available through Section office 327-6622. Please make reservations as soon as possible. Arrangements may be made for tables of 4 and up. The location is the San Mateo Lodge No. 1112 BPOE, 1229 West 20th Ave., San Mateo.

**ACM, IEEE and
SHARE**
JUNE 21-25

**SEVENTH ANNUAL DESIGN AUTOMATION
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JUNE 21-25, Sunday thru Thursday. For information and registration forms, please contact R. J. Preis at IBM Custom Systems, P.O. Box 390, Poughkeepsie, N.Y. 12602.

JACC 1970

The 11th Joint Automatic Control Conference will be held June 24-26, 1970, in Atlanta, Georgia. The conference will include over one hundred and fifty technical papers including specially-invited survey lecturers, case studies, tutorial presentations, and regular technical papers. Discussers will summarize and discuss each of the regular technical papers. Topics to be covered include: computational methods, stochastic control applications, aerospace control, modeling, system identification, social

economic systems and many others.

General Chairman is Prof. Eugene Harrison, Dept. of Mechanical Engineering, Clemson University, Clemson, S.C. 29631. Technical program information can be obtained from the program chairman, Prof. Donald W. Lyons, Dept. of Textiles, Clemson University. Information concerning local arrangements can be obtained from the local arrangements chairman, Prof. Steve Dickerson, Dept. of Mechanical Engineering, Georgia Institute of Technology, Atlanta, Georgia.

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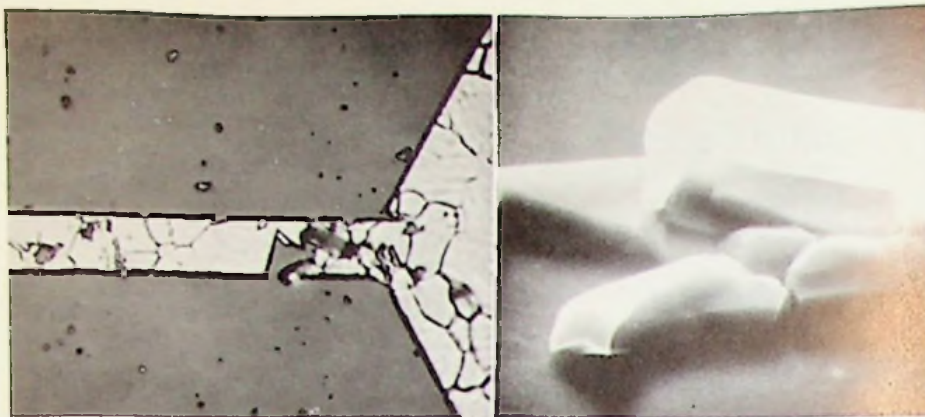
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a) Optical micrograph, 250X

b) SEM micrograph, 5000X

Holes and hills forming in A1 strip due to electromigration.

Semiconductor Device Metallizations: Some Factors Affecting Reliability

Most transistors and integrated circuits use a deposited aluminum film to interconnect active areas. This film – usually one to two microns thick – has been the subject of extensive investigations to identify failure mechanisms as well as to optimize production methods.

Dr. Eugene Meieran of Fairchild's Research and Development Department will discuss metallic interconnection systems at the IEEE Reliability Group's meeting on June 11. His talk will include a film showing deterioration of aluminum strips under high density current stress. This film, taken with an electron microscope, supplements a similar Jet Propulsion Lab film shown earlier and has become well known for its clear demonstration of this failure mechanism. In addition, some scanning electron micrographs showing microcrack formation in the aluminum film at steps in the oxide will be shown.

The 8 PM meeting will be held at Stanford Physics Building room 101. Prior to the meeting there will be a 6:30 PM dinner at the Stanford View Restaurant in Palo Alto. Reserve for the dinner by calling Gil Bowers at 962-4111. No reservations are needed for the talk.

Academies Honor IEEE Members

Newly-elected members of the National Academy of Engineering, announced recently, include two members of the San Francisco Section of IEEE, Senior Member Robert Alexander Bowman and Fellow Calvin Forrest Quate.

Robert Bowman is Vice President of the Power and Industrial Department of the Bechtel Corporation.

Dr. Quate is associated with the Hansen Laboratories of Physics at Stanford University.

Membership in the Academy, which is the highest distinction that can be conferred upon an American Engineer, honors important contributions to engineering theory and practice or unusual accomplishments in pioneering new and developing fields of technology. It is a private organization established in 1964 to sponsor engineering programs aimed at meeting national needs; to encourage engineering research; to advise the federal government, upon request, in matters of engineering; and to recognize distinguished engineers. Membership now stands at 329.

Two IEEE Fellows from Stanford are among the 50 scientists elected to the National Academy of Sciences recently. They are electrical engineering Prof. Gerald L. Pearson and physics Prof. Arthur L. Schawlow.

Prof. Pearson is a co-inventor of the solar battery, and joined the faculty of his alma mater, Stanford, in 1960 after 31 years of research in semiconductors and other fields at Bell Telephone Laboratories.

Prof. Schawlow, a co-inventor of the laser and head of Stanford's Physics Department, has received many honors recognizing his contributions to optical and microwave spectroscopy, nuclear quadrupole resonance, superconductivity and lasers.

The National Academy of Sciences was established by President Abraham Lincoln in 1863. Its principal role is providing scientific advice to the President when requested, and it is dedicated to the furtherance of science for the general welfare.

Summer Short Courses at Santa Clara

COMPUTER METHODS FOR POWER SYSTEM ANALYSIS

Session 1.

July 13-17. Introduction to network mathematics and programming techniques.

Session 2.

July 20-24. Steady state analysis of power systems, three-phase, fault analysis and load flow.

Session 3.

July 27-31. Dynamics of power system components, mechanical stability and electrical transient analysis. Economic dispatching.

Objectives of the course are: a) to familiarize the participants with the present state of the computer technology as applied to planning, design, and control of electrical systems; b) to provide a sound mathematical foundation for network and system analysis so as to enlarge the understanding of modern analytical techniques; (c) to attempt to probe the future problems of system planning.

Fees for the course are as follows: 1 session, \$200; 2 sessions, \$325; 3 sessions, \$450.

DIGITAL COMPUTER SOLUTIONS FOR LINE CONSTANTS AND TRAVELING WAVES ON TRANSMISSION SYSTEMS

Workshop. July 27-29. The workshop will include computer solutions to typical power system problems including FORTRAN programs for line constants and electromagnetic transients. Each day will consist of four 1½-hour sessions with ample time for discussion of practical applications.

This course will be taught by Dr. Herman W. Dommel of the Bonneville Power Administration, one of the world's foremost authorities on the application of the digital computer to the power system problem.

Fees for the workshop: \$250.

For further information write to Professor J. A. Peterson, Dept. of Electrical Engineering, University of Santa Clara, Santa Clara 95053, or call (408) 246-3200, ext. 226 or 227.

Lepselter Describes Beam Lead Technology

Beam Lead Integrated Circuits have been the subject of great interest in recent years. Martin P. Lepselter, Director of the Semiconductor Devices Laboratory, Bell Telephone Laboratories, Allentown, will discuss beam lead technology at a meeting of the Electron Devices Chapter on Thursday evening, June 25th.

Martin P. Lepselter received the BS degree in Mechanical Engineering in 1951 from City College, New York. From 1951-1953 he worked as an ordnance engineer with the U.S. Navy Bureau of Ordnance. From 1953-1955 he was principal engineer for Hudson Fixtures, Inc. During 1955-1957 he was Lecturer in the Department of Mechanical Engineering at City College, New York. In 1957 he joined Bell Telephone Laboratories where he was initially involved in process development associated with surface passivation of silicon devices and shallow junction contact technology for Telstar's solar cells. During the 1960's, Mr. Lepselter was a leader in the development of the beam lead packaging technology. In 1969 he was made Director of the Semiconductor Devices Laboratory, Bell Telephone Laboratories, Allentown, New Jersey.

The location of the meeting is Rick's Swiss Chalet, 4085 El Camino Way, Palo Alto. Cocktails at 6:00, dinner at 7:00 and the talk at 8:00. The dinner will be braised pot roast of beef, \$4.25. Call the Section office for reservations.

ACM/IEEE/SHARE Sponsor Workshop

The ACM, IEEE and SHARE (an IBM user group) will sponsor the seventh annual Design Automation Workshop June 22-25 at the Sheraton-Palace Hotel in San Francisco.

Design Automation implies the use of computers to aid man in design, analysis or synthesis. Design Automation, or Computer-aided Design as it is sometimes referred to, may involve the computer as the sole means for the generation of a design or analysis solution, or it may involve interactive techniques whereby man and machine work jointly in the problem solution.

Papers presented at the workshop will explore applications in the areas of electrical, mechanical and civil engineering, electronics, and computer science.

Anyone wishing further information or registration forms should contact R. J. Preis at IBM Custom Systems, P.O. Box 5390, Poughkeepsie, New York, 12602.

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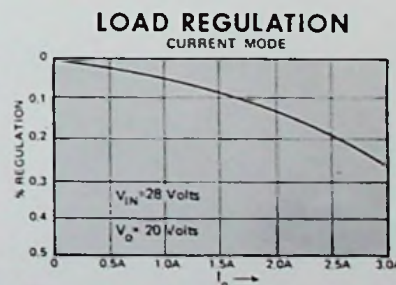
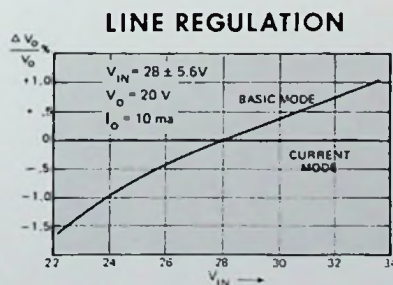


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WESCON Week Wrapup

WESCON in Los Angeles in August offers a giant equipment display and a significant technical program. It is also the occasion for the industry and the engineering profession to honor individual achievements, and for some important all-industry gatherings.

At the traditional Sponsors Luncheon in the Pacific Ballroom of the Los Angeles Hilton, the featured address is to be given by Dr. John V. N. Granger, president of the IEEE. On the same occasion, Dr. Allen V. Asten will receive the IEEE Harry Diamond memorial prize award; the IEEE Region 6 achievement award will be presented, and WEMA will name its Medal of Achievement winner.

On Wednesday evening at Hollywood Park, Region 6 will stage the finals of the student papers competition, and on Thursday, Eta Kappa Nu will name winners of its outstanding college student awards.

The highlight social event of WESCON week, the all-industry cocktail party, is scheduled for Tuesday evening at the Hilton. Women-at-WESCON will be entertained in a "Safari into the Seventies" program, involving a welcoming tea on Tuesday, and an all-day excursion to "Lion Country" in Orange County on Wednesday. The day's program also includes luncheon at the Pavilion in Balboa.

During the week, there will be up to 100 meetings of special technical and administrative committees of the IEEE, WEMA, EIA, and others. The Variable Resistive Components Institute plans a half-day seminar on trimmers at the Hilton on August 25.

Winners in WESCON's 12th annual Industrial Design Awards competition will be recognized at a mid-week reception, and foreign visitors — about 60 exhibitor companies from Canada and overseas which will be participating — will also be welcomed at a reception.

Exhibit and Sessions A-Walk-Away

Western electronics attention will turn toward Los Angeles this summer, where the 19th annual Western Electronic Show and Convention will reflect the state of the technology August 25-28.

WESCON for 1970 will again offer a varied technical program—27 technical sessions this time—plus two halls-full of new equipment exhibits, special events, about 100 society and management meetings, and a gathering of about 45,000 professionals in one city and at one time.

This year, both exhibits and sessions are divided along specific interest lines. Exhibits related to componentry, packaging, production, solid-state fabrication, and communications will all be displayed at Memorial Sports Arena. Just across the park, in the Museum of Science and Industry, 20 sessions will be offered in three spacious meeting rooms.

Continued on page 9

WESCON 70





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Recognition of four years of service to WESCON was awarded to Emmet G. Cameron (left), vice president, corporate development, Varian Associates, by Herbert M. Dwight, Jr., San Francisco Council chairman and WEMA vice-president. Cameron served on the WESCON board from 1966, and as chairman of the executive committee during his last year in office, 1969.



John C. Beckett, government relations manager of Hewlett-Packard, receives plaque from John B. Damonte, Chairman of the San Francisco Section of IEEE, in appreciation for service to WESCON during his four-year term as a director of the show and convention. Beckett, who was chairman of the WESCON board in 1969, had served since 1966.

At the same time, a panorama of new instrumentation, computer, peripheral, and software equipment and systems will be concentrated at Hollywood Park Race Track. Only an escalator ride away, computer-related sessions will be offered in a specially-built meeting room.

Locations of the two blocks of technical sessions at Hollywood Park and the Sports Arena marks a change for WESCON in Los Angeles, where technical sessions have in the past been presented in downtown hotels. WESCON directors feel that moving sessions close to the exhibit arenas represents a major convenience to engineer-visitors.

Coincidentally, this is the last of the "split shows" for WESCON in Los Angeles. In its next Southland appearance in 1972, WESCON will move into the spanking-new Convention Center, which will offer nearly 250,000 square feet of exhibit space under one roof, as well as more-than-adequate meeting facilities.

As reported elsewhere in this issue, volunteer committees from California industrial and engineering ranks have finalized most major parts of the West's big electronics week. The 27 technical sessions are committed, entries in the Science Film Theater and Industrial Design Awards programs are in hand, the ladies have an unusual educational/entertainment program scheduled, and a series of traditional WESCON "sidebar" activities are rounding into final shape.

Dr. John V. N. Granger, whose 1970 presidency of the IEEE is a highlight in an outstanding technical and management career in California electronics, will be featured speaker in the WESCON sponsors Luncheon, traditional keynote event of the week. The Distributor-Manufacturer-Representative Conference, WESCON pioneer marketing event now in its teens, will be back bigger than ever at the Century Plaza Hotel—more than 1,000 factory men, distributors, and reps will participate. Several IEEE, WEMA, and Eta Kappa Nu honors are to be bestowed in special ceremonies during the week, and foreign visitors, as many as 500 of them, will be greeted in a special reception.

WESCON direction for 1970 comes from an executive committee made up of the four Los Angeles-area members of an eight-man board of directors. Lloyd L. Goss, Los Angeles Department of Water and Power, is chairman, and members include Donald C. Duncan

(Duncan Electronics Corp.) chairman of the WESCON board; Charles M. Edwards (United Geophysical Corp.), convention director; J. Rudy Hummes (Bell Electronics Corp.), show director, and Don Larson, WESCON general manager.

Four northern California board members serve this year as a long-range planning committee. Included are William H. Heflin (FRL Inc.), Fred J. MacKenzie (SRI); Robert M. Ward (Ultek), and Dr. Stanley F. Kaisel, consultant.

Technical Session Units

A program of 27 "session unit" technical and management presentations has been selected for WESCON/70 from among more than 70 program proposals.

Announcement was made this month by Ernest W. Pappenfus, technical program chairman.

Under WESCON's approach to technical programming, the "call" is for proposals for four-paper sessions, with each paper related to a sub-set of the session topic. This year, 20 of the 27 sessions are to be presented in meeting halls at the California Museum of Science and Industry, about 400 yards away from the Los Angeles Memorial Sports Arena (where half of WESCON exhibits will be held). The remaining seven sessions, all computer-related, will be offered at Hollywood Park Race Track, also a major product exhibit site.

By category of interest, the program breaks down this way: seven sessions cover computers, peripherals, and software; five are in the area of technical or marketing management; two deal with microwave; two discuss methods of solid-state fabrication; four are in the instrumentation category; and three are on communications subjects.

Concurrent sessions will be presented mornings and afternoons, Tuesday through Friday, August 25-28, in both program locations. At Hollywood Park, the Science Film Theater program will screen scientific and engineering motion picture daily from 10:30 a.m. to 4:30 p.m.

Mr. Pappenfus and his committee have been at work on WESCON program planning since last November. Members include R. H. Aires, RCA Electromagnetic and Aviation Division, Van Nuys; Prof. Roger Brandt, Cal State at Los Angeles; Dr. Walter Levertson, Aerospace Corp.; Dr. Eldred Nelson, TRW Systems Group; and Dr. Gerhard Hollander, Hollander Associates, Fullerton. Convention director is Charles M. Edwards, United Geophysical Corp., Pasadena.



Dr. John Granger,
keynote speaker



Floyd L. Goss, Chairman,
Executive Committee



Donald C. Duncan,
Chairman of the Board



Charles M. Edwards,
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ENGINEERING SYSTEMS IN EDUCATION AND TRAINING is the theme of the 11th IEEE SYMPOSIUM ON MAN-MACHINE SYSTEMS to be held at the Langford Hotel in Winter Park, Florida, November 12-13, 1970. Authors are invited to contribute papers relating to substantive engineering issues for use in the following four broad categories: 1) The engineer as the bridge between research and its application to human problems, 2) The design of an instructional system - its elements and dimensions, 3) The dimensions of the education and training problem, 4) Human values in engineering design. One- to two-page summaries which may include illustrations and graphs but no photos should be submitted by May 15 to the Publications Chairman, Mr. S. E. Michaels, Bell Telephone Laboratories, Room 3D-529, Holmdel, New Jersey 07733. Single-space text body, leave 3/4-inch margin all around. Preferred type face is Pica, on good bond paper, using a healthy ribbon. Mail flat.

The 1970 IEEE INTERNATIONAL SYMPOSIUM ON CIRCUIT THEORY will be held December 14-16 at the Sheraton-Biltmore Hotel in Atlanta, Georgia. Authors are encouraged to submit papers which bear on circuit theory as related to topics such as integrated circuits, computers and computer networks, digital filters, information retrieval, large-scale systems, biological systems, and transportation and traffic networks. Two copies of an abstract of 100 to 250 words must be submitted by June 1, 1970. Four copies of regular and short papers must be submitted before July 1. All manuscripts are to be in the standard format of contributions to the IEEE Transactions on Circuit Theory, with short papers prepared as letters-to-the-editor. (See back cover of Transactions for manuscript instructions.) Notification of acceptance will be made by October 1. Submit all material to the Program Chairman, I. T. Frisch, Network Analysis Corporation, Beechwood, Old Tappan Road, Glen Cove, New York 11542.

The FOURTH ASILOMAR CONFERENCE ON CIRCUITS AND SYSTEMS will be held November 18-20, 1970, at the Asilomar Hotel and Conference Grounds in Pacific Grove. It is to be devoted to the presentation and discussion of original research developments and new ideas in the general areas of circuits and system theory. Papers are invited in these and related areas. Authors should submit, in duplicate, a one-page abstract headed by a title, name(s) of author(s) and affiliation(s), suitable for photo-reproduction, typed single-spaced on white paper with 1 1/2-inch margins, before August 30, 1970. Authors will be notified of acceptance before September 28. Please send all abstracts to the Conference Chairman, Professor Shu-Park Chan, Dept. of Electrical Engineering, University of Santa Clara, Santa Clara 95053.

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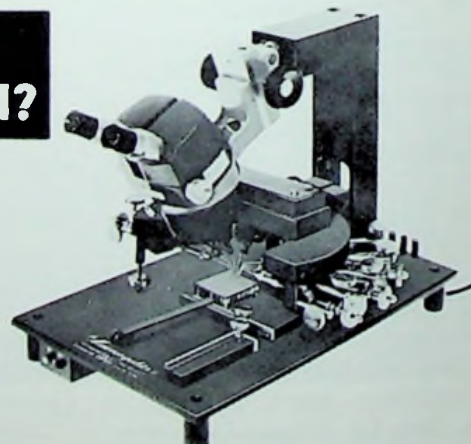
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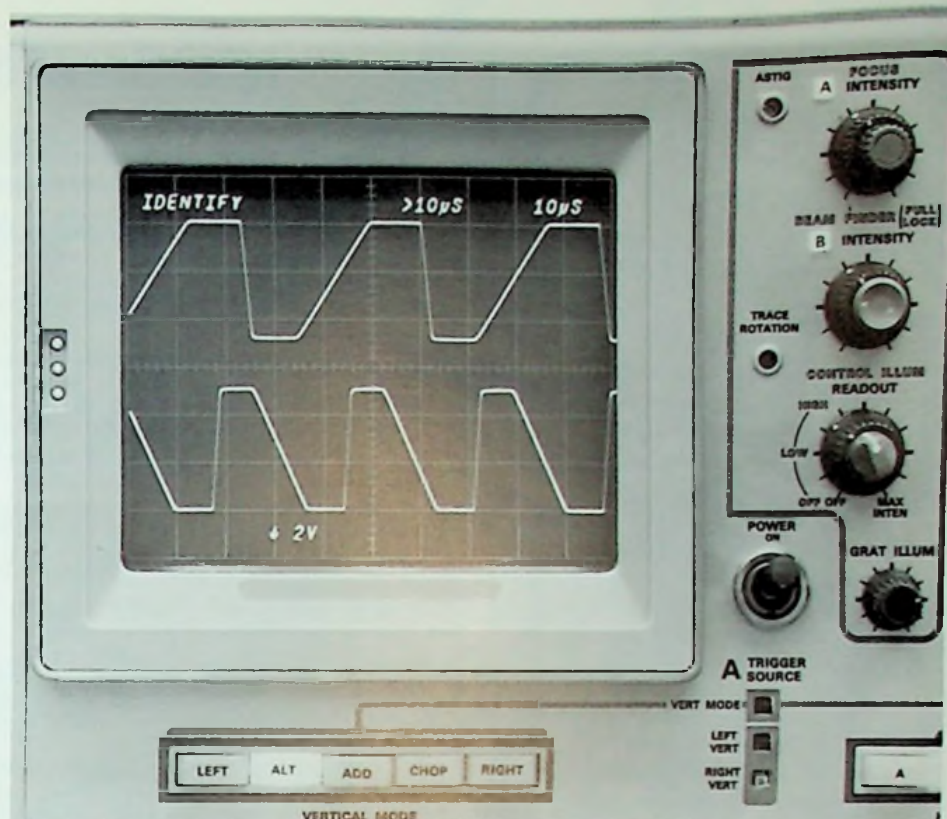
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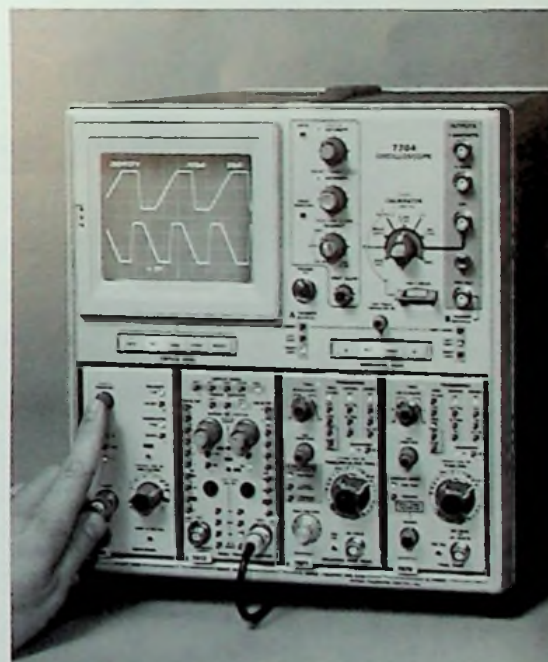
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ICC Sessions Topics

All conference sessions will be held on the ballroom floor
of the Hilton Hotel according to the following schedule:

- SESSION 1: ELECTROACOUSTIC TRANSDUCERS, Monday, June 8, 9:00 a.m. to 12:00
- SESSION 2: SOURCE ENCODING, Monday, June 8, 9:00 a.m. to 12:00 noon
- SESSION 3: CUSTOMER TELEPHONE SYSTEMS I, Monday, June 8, 9:00 a.m. to 12:00
- SESSION 4: WIDEBAND DATA, Monday, June 8, 9:00 a.m. to 12:00 noon
- SESSION 5: MECHANIZED MICROWAVE ENGINEERING, Monday, June 8, 9:00 a.m. to 12:00 noon
- SESSION 6: MILLIMETER-WAVE COMMUNICATION SYSTEMS — PANEL DISCUSSION, Monday, June 8, 9:00 a.m. to 12:00 noon
- SESSION 7: DIGITAL SIGNAL CONVERSION, Monday, June 8, 9:00 a.m. to 12:00 noon
- SESSION 8: BANDWIDTH LIMITED COMMUNICATIONS, Monday, June 8, 9:00 a.m. to 12:00 noon
- SESSION 9: EXAMPLES OF TELECOMMUNICATIONS PLANNING, Monday, June 8, 2:00 p.m. to 5:00 p.m.
- SESSION 10: CHANNEL CHARACTERIZATION, Monday, June 8, 2:00 p.m. to 5:00 p.m.
- SESSION 11: CUSTOMER TELEPHONE SYSTEMS II, Monday, June 8, 2:00 to 5:00 p.m.
- SESSION 12: DATA INPUT AND OUTPUT DEVICES, Monday, June 8, 2:00 to 5:00 p.m.
- SESSION 13: LINE-OF-SIGHT MICROWAVE PROPAGATION — Panel Discussion, Monday, June 8, 2:00 p.m. to 5:00 p.m.
- SESSION 14: LASER COMMUNICATION SYSTEMS, Monday, June 8, 2:00 p.m. to 5:00 p.m.
- SESSION 15: TRANSMISSION SYSTEMS DESIGN AND PERFORMANCE, Monday, June 8, 2:00 p.m. to 5:00 p.m.
- SESSION 16: COMPUTER COMMUNICATION SYSTEMS, Monday, June 8, 2:00 to 5:00 p.m.
- SESSION 17: MISSION REQUIREMENTS AND SPECIFICATIONS OF PERFORMANCE FOR 1970 DECADE HIGHWAY ELECTRIC VEHICLES — Panel Discussion, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 18: COMMUNICATION THEORY AND CODING, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 19: COMPUTER AND COMMUNICATION NETWORKS, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 20: FACSIMILE, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 21: TOPICS IN ANGLE MODULATION, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 22: LASERS AND MILLIMETER WAVE COMMUNICATIONS, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 23: CHARACTERISTICS AND CHARACTERIZATION OF THE TELEPHONE CHANNEL — I, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 24: CIRCUIT THEORY, Tuesday, June 9, 9:00 a.m. to 12:00 noon
- SESSION 25: COMMUNICATIONS FOR THE COMMUNITIES OF MAN — Panel Discussion, Tuesday, June 9, 2:00 p.m. to 5:00 p.m.
- SESSION 26: DIGITAL SIGNAL PROCESSING, Tuesday, June 9, 2:00 p.m. to 5:00 p.m.
- SESSION 27: NEW SWITCHING SYSTEMS, Tuesday, June 9, 2:00 p.m. to 5:00 p.m.
- SESSION 28: DATA TECHNIQUES, Tuesday, June 9, 2:00 p.m. to 5:00 p.m.
- SESSION 29: INTERFERENCE AND NOISE ON RADIO SYSTEMS, Tuesday, June 9, 2:00 p.m. to 5:00 p.m.
- SESSION 30: SATELLITE COMMUNICATION SYSTEMS PROBLEMS AND SOLUTIONS, Tuesday, June 9, 2:00 p.m. to 5:00 p.m.
- SESSION 31: CHARACTERISTICS AND CHARACTERIZATION OF THE TELEPHONE CHANNEL — II, Tuesday, June 9, 2:00 p.m. to 5:00 p.m.
- SESSION 32: VEHICULAR COMMUNICATION 1970, Tuesday, June 9, 2:00 to 5:00 p.m.
- SESSION 33: COMMUNICATION CONCEPTS FOR AIRLINE OPERATIONS OF THE FUTURE — Panel Discussion, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 34: SYNCHRONIZATION AND MODULATION THEORY, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 35: TRAFFIC CONSIDERATIONS IN SWITCHING SYSTEMS, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 36: DATA TRANSMISSION TECHNIQUES, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 37: RADIO COMMUNICATIONS SYSTEMS, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 38: REGIONAL COMMUNICATIONS SATELLITE SYSTEMS AND TECHNOLOGY, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 39: 4-WIRE MAKES SENSE IN TRANSMISSION PLANNING — Panel Discussion, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 40: ANTENNAS AND PROPAGATION — I, Wednesday, June 10, 9:00 a.m. to 12:00 noon
- SESSION 41: THE FUTURE OF ELECTRONIC AIDS FOR HIGHWAYS — Panel Discussion, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.
- SESSION 42: COMMUNICATION SYSTEMS, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.
- SESSION 43: SWITCHING DEVICES AND FEATURES, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.
- SESSION 44: OPEN SESSION, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.
- SESSION 45: VOICE RESPONSE FROM COMPUTERS, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.
- SESSION 46: SMALLER USER SPACE COMMUNICATION SYSTEMS, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.
- SESSION 47: RECENT TRANSMISSION SYSTEMS DEVELOPMENT AROUND THE WORLD, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.
- SESSION 48: ANTENNAS AND PROPAGATION — II, Wednesday, June 10, 2:00 p.m. to 5:00 p.m.



ICC 70 EXECUTIVE COMMITTEE MESSAGE

The Theme "Communications in the Development of Nations" has served as your Executive Committee's guide in arranging the overall program for ICC-70. An outstanding Technical Program featuring some 60 foreign and 190 domestic technical papers are to be presented in 47 sessions. One of the sessions, a panel discussion session titled "Communications for the Community of Man," featuring some outstanding international leaders in communications and higher education, will explore the human environment for communications engineers. For the Luncheon and Dinner we also have outstanding speakers who will be:

DINNER:

Dr. Charles Susskind, Professor of Engineering Science, The University of California College of Engineering

LUNCHEON:

Dr. Heinrich Haymerle, Ambassador of Austria, Chairman, United Nations Council for Peaceful Uses of Outer Space

The planning for the convention has been directed to provide for a completely balanced convention. One that features not only the top technical advances described in the technical papers, but also featuring the display of actual hardware that is the result of these technical engineering achievements. An extensive exhibit area will display the latest products of the telecommunication manufacturers from the United States and foreign countries.

In planning your schedule at the convention, be sure to include time to spend talking to the representatives of the manufacturers that are displaying these latest developments. You will find this just as valuable as attending the technical sessions.

All in all your committee feels it has

put together a convention that will meet the requirements of all technical personnel in the telecommunication industry. ICC is now the communications channel for the communication industry. This assembly will continue to grow each year to further enhance its value to all of the individual communication engineers as well as the industry as a whole.

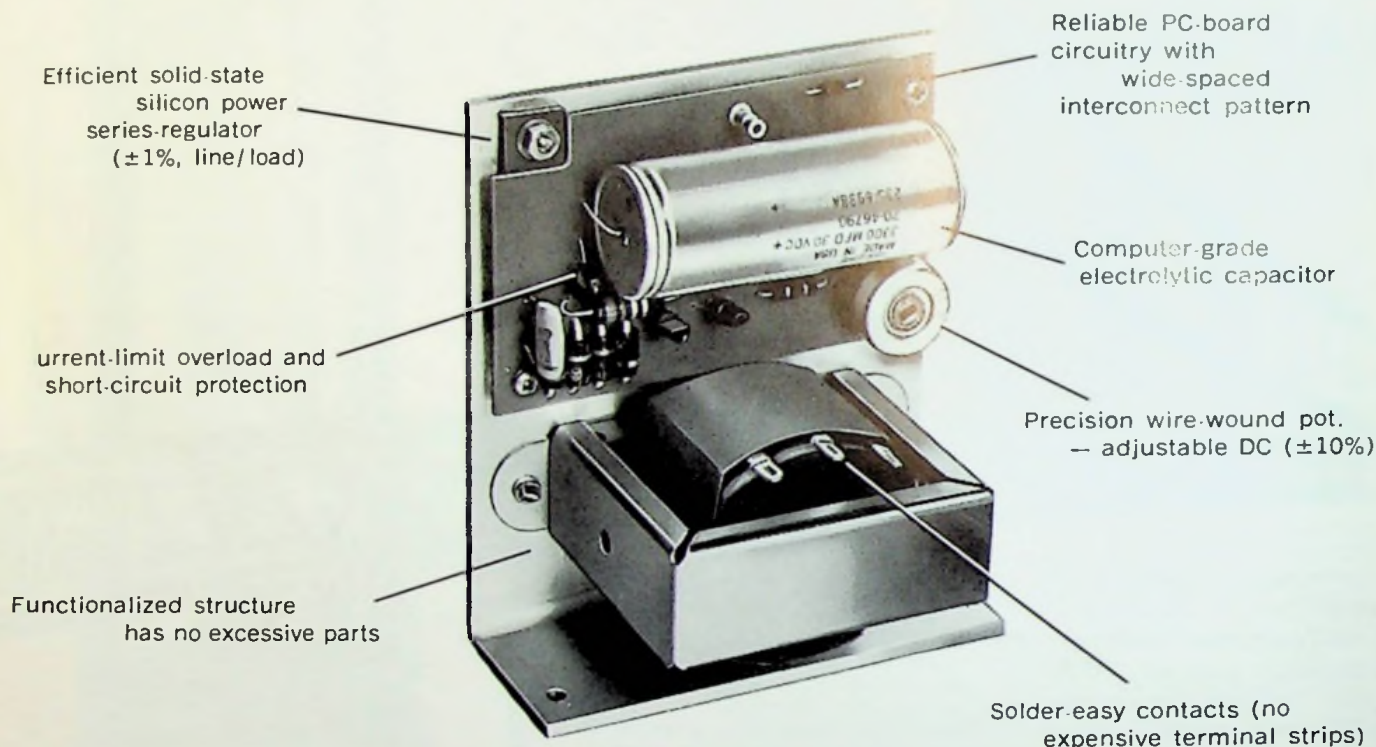
All of us on the Executive Committee are eagerly looking forward to welcoming you and your families to San Francisco this coming June. If there is anything we can do to help make your stay more exciting, more interesting and more profitable, please let us know.

Sincerely yours,
WALT NOLLER
Chairman Executive Committee
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